Space Weather Forecast

Issued on Monday, 18 April 2022 at 01:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Moderate-class X-ray flares likely throughout (R1/R2 Radio Blackouts).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity remains high in the past 24 hours, with a strong X-ray flare observed, peaking at 17/0334UTC. This emanated from a large sunspot in the northeast ith another region close by. There are currently five sunspot groups on the Earth-facing side of the sun. The two aforementioned sunspot regions occupy a particularly busy portion of the sun, which may yet prove still more densely populated when the viewing angle improves, with far-side imagery suggesting further detail is likely to emerge in coming hours. There are also two other regions of note, one in the southwest, a bipolar region, approaching the limb today and a sunspot group near the middle of the sun displaying intermediate spot proliferation. The fifth sunspot is a simple, stable unipolar spot in the southeast.
Some peripheral CMEs were observed and the largest and most notable of which was generated by the aforementioned strong X-ray flare, however at present there are thought to be no Earth-directed CMEs in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind was elevated to slightly elevated related to ongoing fast wind influence from 'coronal hole' activity. The associated magnetic field remained weak and this resulted in quiet to unsettled geomagnetic activity.

Energetic Particles / Solar Radiation: No solar radiation storms were observed, with no discernible response from the strong-class flare, probably due to its eastward location on the sun.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to continue moderate through the period, primarily due to the newly-arrived northeastern active region(s). There is a daily chance (40%) of further strong-class X-ray flares. No significant groups leave the sun in the four days, however the northeastern solar horizon may yet be bolstered by further arrivals and this may well increase the probability for future strong x-ray flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs in the current forecast. Earth is embedded within the fast wind related to a couple of coronal holes. Confidence is low regarding the detail of the fast winds, however a modest decline is probable from day 2 (19 April) onwards. Geomagnetic activity is anticipated to be quiet to unsettled with a chance of active intervals.

Energetic Particles / Solar Radiation: No solar radiation storms are likely, however there is a slight increase in probability by the end of the period as the largest and most complex regions move westwards across the Earth-facing side of the sun.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	80	80	70	70
Very Active	R3 to R5 X	Yes	40	50	50	40

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	20
Very Active	≥ S3 *	No	1	1	1	5
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.